

Predicting Corona Disease Anxiety among Medical Staff in Tehran Based on Five-Factor Theory of Personality

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Abstract

Objective: The present study aimed to predict corona disease anxiety among medical staff in Tehran based on five-factor theory of personality.

Method: In the present descriptive and correlational study, the statistical population included all medical staff in Tehran in 2020, among which 210 physicians, nurses, and other medical staffs were selected based on snowball sampling method. The instruments included Neo-Five Factor Inventory (NEO-FFI) and Corona Disease Anxiety Scale (CDAS). Data were analyzed using Pearson's correlation and Multiple Regression Analysis.

Findings: Regression analysis indicated significantly Beta coefficients for openness personality (-0.238) and conscientiousness personality traits (-0.249).

Conclusion: Medical staff who are higher in openness and conscientiousness personality traits are lower in corona disease anxiety.

Keywords: Corona disease anxiety, five-factor theory, personality, medical staff.

Introduction

Coronaviruses RNA (COVS) led to a main public health concern by developing severe acute respiratory syndrome (SARS) since its prevalence in 2002. The intermittent changes in coronavirus resulted in emerging Middle East respiratory syndrome (MERS) in 2012. The world has recently been involved in 2019 novel coronavirus which was first diagnosed in Wuhan, China at December 2019 (World Health Organization, 2020). COVID-19 is presented as severe viral pneumonia and respiratory disease. The number of morbidity is rising since that time and thousands cases of morbidity and mortality were reported in China and other countries in the late February. Although the

fatality rate of SARS-COV-2 is less compared to that of SARS-COV, the virus is highly contagious (Ashour, Elkhatib, Rahman, & Elshabrawy, 2020).

According to WHO (2020), the virus can be originated from bat. In fact, bats can be considered as the origin of many types of coronaviruses. COVID-19 got started in China since 2019 and expanded into 130 countries and many areas of the world until March 2020. High fever, dry cough, fatigue, sputum, sore throat, headache, and muscle pain are regarded as the common symptoms of the disease, which are extremely dangerous in elderly and vulnerable groups. So far, no specific and proven treatment was discovered for the disease despite its treatability, and symptomatic treatments are often used, leading to a decrease in symptom severity. COVID-19 vaccine making has been started, thus protecting the self, observing personal

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hygiene, and changing some of social behaviors are considered as the most effective approach (Buruk & Ozla, 2020).

WHO predicted the risk of developing SARS or SARS-COV-2 as high for all countries in the world and warned about the risk of high transmissibility. The virus endangers the mental and physical health of people quickly (Jeong, 2020).

The mortality rate caused by the disease is predicted to reach 3.4% in the world. The medical staff, including physicians, nurses, and paramedics are at higher risk for infecting the virus compared to others because of more exposure to infection. In fact, they are at the forefront of developing the diseases of SARS, MERS, and Ebola, due to their direct contact with patients. When SARS and MERS diseases suddenly emerged in the world at 2003 and 2015, respectively, 44 medical staff became infected (Semple & Cherrie, 2020). Based on a recent study in America, 10% of medical staff get coronavirus every week (Baker, Peckham & seixas, 2020). Along with medical staff, other employees and service personnel, such as hospital cleaners, store employees, bus and taxi drivers, and trainers, who provide services to people, are at the risk of getting the virus. Most of these people are in direct contact with patients physically while exchanging goods and money. The wide spread of COVID-19 worldwide has led to a significant level of anxiety among the staffs who are concerned about getting or transmitting virus to other employees, clients, and family members (Semple & Cherrie, 2020). Additionally, the medical staff exposing COVID-19 patients directly stay away from their family members for days and weeks, due to quarantine conditions and social isolation, especially from close family members, which result in increasing their anxiety. Anxiety and isolation in quarantine conditions can weaken the immune system of people and make them more vulnerable against coronavirus (Fardin, 2020).

Recently, a study was conducted in Zhushan,

China, among two families, each of which possessed one member with severe coronavirus disease. One of the patients was a lecturer in Zhushan, who invited his friend for dinner after returning from conference and both had eaten in one dish. After a few days, the disease was diagnosed in both with the severe symptoms of fever, cough, and shortness of breath and quarantined in their home and could only communicate with other family members by telephone. Although quarantine method prevented virus from transmitting to other family members, diagnosing disease and placing in quarantine conditions put the patients and their families in a severe anxiety (Tong, Tong, Li, Li, Wang, Yi, Zhang, & Yan, J-B., 2020).

Another study sought to assess psychological effects such as anxiety, stress, and depression in the early stages of starting COVID-19 among 1210 individuals from 194 cities in China by using online questionnaires. Based on the results, 53.8% of the participants were affected by the psychological disorders caused by prevailing the disease, among whom 16.5, 28.8, and 8.1% reported severe depressive symptoms, severe anxiety symptoms, and high stress, respectively. Further, 84.7% were daily quarantined at home for 20-24 h and 75.2% were concerned about transmitting coronavirus to their family members (Wang, Pan, Wan, X, Tan, Xu., Ho & HO., 2020). Al-Rabiaah Tamsah, Al-Eyadhy, Hassan, Al-Zami & Al-Subaies, 2020) conducted a study in a Medical School in Saudi Arabia and reported that all medical students experienced high stress and anxiety by prevailing coronavirus. According to X, Cai, Shen, Ni, Chen and HU. (2020), the symptoms of fear and anxiety were common among COVID-19 patients and could be considered as a warning symptom for those dealing with the patients.

SARS became epidemic in 2002-2003 before prevailing 2019 novel coronavirus or COVID-19, and 8098 individuals got the disease, among whom 744 died due to acute respiratory failure. A study was

performed among 129 individuals in Canada during prevailing the disease, by indicating the symptoms of psychological disorders in 60% of participants, among whom 28.9 and 31.2% represented the posttraumatic stress disorder (PTSD) and depression due to the anxiety caused by developing the disease and placing in quarantine conditions (Hawryluck, Gold, Robinson, Pogerski, Galea & Styra, 2004).

Based on the results of some studies, the anxiety caused by coronavirus among patient's family (Tong et al., 2020; XU et al., 2020) and medical staff (Al-Rabiaah, Temsah, Al-Eyadhy, Hassan, Al-Zamil & Al-Subaies, 2020) was higher compared to other community members due to the higher risk of infection and transmission. Additionally, the psychological effects of disease on people's lives continue for years after its end (Hawryluck, et al., 2004).

Some studies demonstrated that personality traits result in increasing individual's vulnerability during the prevalence of contagious disease and consequently affecting immune system negatively (Kotov et al., 2010). Further, personality traits and the quality of life influence health directly regarding chronic diseases such as diabetes. The personality traits of pugnacity, dysthymia, and neurotic symptoms are observed in some diabetic patients. They experience high anxiety and depression and the decrease in tolerance threshold to stress (Norhayati et al., 2020). The personality traits affect the disease recovery of the patients requiring long-term treatment significantly. Self-efficacy is considered as one of the personality traits, which plays an important role on the success of disease management. The possession of low self-efficacy, avoidance of intimate relationships and emotional closeness, and weakness in recognizing emotions affect the process of disease recovery negatively, while education level and better financial situation influence positively (Winahyu, Anggita & Widakdo, 2019).

Some studies emphasized on the presence of a

relationship between NEO Five-factor Inventory (NEO-FFI) of personality and mental and physical health. Based on the results, physical health is related to extraversion and conscientiousness positively and neuroticism negatively. Neuroticism, openness to experience, and extraversion predict physical health (Barghi Irani et al., 2014; Chan, 2019; Sanatinia et al., 2015). In addition, mental health is predicted by extraversion, conscientiousness, neuroticism, and openness to experience. A negative and positive relationship is observed between neuroticism, as well as extraversion and conscientiousness with mental health, respectively (Abdel-Khalek, 2012).

Most of the studies were conducted on the virus highlighted physical health and paid less attention to its threats on mental health. Further, no study, to the best of our knowledge, sought to assess and predict coronavirus anxiety by using big five personality traits in Iran and other countries. Therefore, the present study aimed to predict coronavirus anxiety based on the big five personality traits among medical staff and respond to the following questions.

Considering the important role of big five personality traits in predicting physical and mental health and anxiety disorders, the following questions are raised.

Q1. Can NEO five personality traits predict the physical and mental anxiety caused by coronavirus in people, especially the medical staff exposing the deadly and dangerous virus directly?

Q2. Is the level of coronavirus anxiety in the medical staff contacting directly with COVID-19 patients different from those exposing indirectly?

Q3. Is the level of coronavirus anxiety different among the medical staff with various education levels and occupational categories (physician, nurse, and employee)?

Method

In the present descriptive and correlational research, the statistical population included all medical staff working in the hospitals of Tehran

city and responded the questionnaires sent to their smartphones online via Whats-App, telegram, and message. The method of responding online was selected due to the quarantine of Tehran and lack of permission for entering into hospitals and providing paper questionnaires to medical staff. Based on the online snowball sampling, in total, 210 participants filled the questionnaires online.

The inclusion criteria were being one of the medical staff employing in the hospitals of Tehran city, having at least diploma, and willing to participate in the study. Retiring and not working in hospital and medical centers, possessing mental and mood disorders, and developing coronavirus by individual or one of his family members (spouse and children) were considered as the exclusion criteria.

The inclusion and exclusion criteria were recognized based on the phone interview with participants before sending questionnaires and self-reporting in demographic questionnaire. The interviews were implemented by a neurologist and psychiatrist helping researcher to conduct the study. Responding to the questionnaires took 5-10 minutes for each individual based on the calculation of online system. The study was conducted in April 2020 (COVID-19 peak in Iran).

Ethical statement

Seven specialists and two nurses available to researcher were invited to participate in the study. The researcher talked to them about goals of study, the confidentiality of information, and period of responding. In addition, the researcher asked to get permission from their colleagues for providing mobile numbers to researcher in order to participate in the study. After calling physicians, nurses, paramedics, and others, explaining study objective, and acquiring agreement, questionnaires were sent. Then, the participants were asked to inform their colleagues and give mobile numbers to researchers after acquiring permission.

Instruments

NEO Five Factor Inventory (NEO-FFI): It was prepared by Costa and McCrae and translated by Kiamehr for the first time in 2002. NEO-FFI is regarded as a short 60-item form of the inventory, which examines big five personality traits including Neuroticism (N), Extraversion (E), Openness to experience (O), Agreeableness (A), And Conscientiousness (C). Each trait consists of 12 questions which are scored on five-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) as 0-4. A number of questions are reversely graded. The scores related to each trait are calculated by the simple sum of the options of each index by using the key of each index in the answer sheet. Then, the scores are transferred to a profile converting raw scores to T ones, categorized, and interpreted. The validity of the inventory was confirmed in a study conducted among humanities students at the University of Tehran. Test-retest and internal consistency methods were used to estimate the reliability in the present study. Regarding the test-retest method of short-term form, the correlation coefficient of the scores related to the first and second turns with two-three-week distance was separately calculated for the factors of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness as 0.84, 0.82, 0.78, 0.65, and 0.86, respectively. Additionally, the reliability of the test was determined in the present study by using Cronbach's alpha as 0.63, 0.65, 0.70, 0.64, and 0.59 for the above-mentioned factors, respectively.

Corona Disease Anxiety Scale (CDAS): The instrument was prepared and validated by Alipour et al. (2020) for measuring the anxiety caused by prevailing coronavirus in Iran. The final version of the instrument includes 18 items and two components (factors), among them, items 1-9 and 10-18 examine mental and physical symptoms, respectively. The instrument is scored on four-point

Likert scale (3= always, 2=usually, 1=seldom, 0= never). Thus, the maximum and minimum score obtained by participants is 0 and 54 and more scores represent higher anxiety in individuals. In addition, its reliability was obtained by using Cronbach's alpha as 0.879, 0.861, and 0.919 for the first factor, second factor, and whole scale, respectively. Further, the Guttman's lambda-2 related to the first factor, second factor, and whole scale was determined as 0.882, 0.864, and 0.992, respectively. The instrument was correlated with general health questionnaire-28 (GHQ-28) to evaluate its criterion validity by indicating the correlation coefficient between CDAS and the total score of GHQ-28, anxiety, physical symptoms, social dysfunction, and depression as 0.483, 0.507, 0.418, 0.333, and 0.269, respectively, all of which were significant at 0.01 level.

Findings

Based on the demographic results, 114 (54.3%) participants were female and 96 (45.7%) were male, among whom 158 (75.2%) were married and 52 (24.8%) were single. In addition, they aged 20-74 years old, among whom 31 (14.8%), 79 (37.6%), 21 (10.0%), and 79 (37.6%) held diploma and associate, bachelor, master, and doctorate's degree, respectively. Further, the statistical population included 76 (36.2%) specialists and sub-specialists, 62 (29.5%) nurses, 9 (4.3%) paramedics, 5 (4.2%) laboratory personnel and radiologists, and 58 (27.6%) other medical staff. Furthermore, 123

(58.6%) participants contacted with COVID-19 patients indirectly and 87 (41.4%) were exposed to the patients directly.

The non-parametric Mann-Whitney U test was used to assess the difference between gender and marital status regarding the CDAS score of the participants by considering that the level of coronavirus anxiety did not follow a normal distribution (the probability value of Kolmogorov-Smirnov test was less than 0.05). The results of the test demonstrated no significant difference in anxiety with respect to gender ($p=0.474$) and marital status ($p=0.523$) at the 95% confidence level.

After evaluating the demographic results in Table 1, the descriptive statistics (mean, standard deviation (SD), skewness, and kurtosis) of the factors in questionnaires were reported. The correlation matrix between micro-components was applied for assessing the relations between the factors of questionnaire.

As shown in Table 2, a statistically significant correlation is observed between openness (39%), neuroticism (-39%), extraversion (37%), conscientiousness (34%), and agreeableness (25%) with coronavirus anxiety at the 99% confidence level. Further, the correlation between each of the dimensions and the mental component of coronavirus anxiety is more compared to that of physical one.

In the following, the questions are answered by using a multiple regression.

Table 1. Descriptive statistics of the variables in the study

Variable	Mean	SD	Min	Max	Skewness	Kurtosis
Age	40	10.22	20	74	0.511	0.213
Neuroticism	31.86	4.35	16	42	-0.44	1.04
Extraversion	26.53	5.91	14	48	0.97	1.07
Openness	26.12	4.69	17	45	1.59	4.45
Conscientiousness	22.29	5.59	12	46	1.31	3.17
Agreeableness	29.08	3.32	22	39	0.354	0.223
Mental component of coronavirus anxiety	11.30	5.34	1	27	0.599	-0.287
Physical component of coronavirus anxiety	3.63	4.53	0	21	1.87	3.10
Total coronavirus anxiety	14.93	9.08	1	47	1.13	0.828

Table 2. Correlation matrix of personality traits and coronavirus anxiety

Variable	Neuroticism	Extraversion	Openness	Conscientiousness	Agreeableness	Mental component of coronavirus anxiety	Physical of coronavirus anxiety	Total coronavirus anxiety
Neuroticism	1							
Extraversion	-0.699**	1						
Openness	-0.567**	0.635**	1					
Conscientiousness	-0.584**	0.765**	0.624**	1				
Agreeableness	-0.349**	0.370**	0.324**	0.383**	1			
Mental component of coronavirus anxiety	-0.332**	0.274**	0.272**	0.215**	0.176**	1		
Physical component of coronavirus anxiety	-0.383**	0.430**	0.466**	0.452**	0.289**	0.692**	1	
Total coronavirus anxiety	-0.387**	0.375**	0.392**	0.337**	0.247**	0.933**	0.906**	1

Q1. Can the level of coronavirus anxiety be predicted in medical staff based on big five personality traits?

Based on the results in Table 3, openness and conscientiousness are considered as significant in predicting the level of the total coronavirus anxiety

with the standard coefficient of -0.238 and -0.249, respectively. Since the standard coefficient related to the variable of openness is less compared to that of conscientiousness, the second one plays a more important role in predicting the level of the

Table 3. Results of a multiple regression for predicting the level of coronavirus anxiety based on the personality traits

Type of anxiety	Variable	Non-standard coefficients		Standard coefficients	R	R ²	T	P
		B	Standard error	Beta				
Coronavirus	Constant	39.733	11.928		0.451	0.203	3.331	0.001
	Neuroticism	-0.086	0.199	-0.041			-0.430	0.668
	Extraversion	0.178	0.184	0.116			0.970	0.333
	Openness	-0.461	0.178	-0.238			-2.592	0.010
	Conscientiousness	-0.405	0.175	-0.249			-2.312	0.022
	Agreeableness	0.082	0.201	0.030			0.409	0.683
Mental component of coronavirus	Constant	19.364	7.155		0.353	0.124	2.706	0.007
	Neuroticism	-0.014	0.120	-0.011			-0.115	0.909
	Extraversion	0.158	0.110	0.175			1.435	0.153
	Openness	-0.214	0.107	-0.188			-2.010	0.046
	Conscientiousness	-0.238	0.105	-0.249			-2.261	0.025
	Agreeableness	0.105	0.120	0.065			0.875	0.383
Physical component of coronavirus	Constant	20.368	5.862		0.363	0.133	3.474	0.001
	Neuroticism	-0.072	0.098	-0.069			-0.734	0.464
	Extraversion	0.020	0.090	0.026			0.221	0.825
	Openness	-0.246	0.087	-0.255			-2.820	0.005
	Conscientiousness	-0.168	0.086	-0.207			-1.944	0.053
	Agreeableness	-0.023	0.099	-0.017			-0.234	0.815

total coronavirus anxiety. The negative sign of the standard coefficients of two variables represents that an increase in the traits of openness and conscientiousness result in decreasing the level of total coronavirus anxiety. The level of total coronavirus anxiety can be predicted based on the following regression model.

$$\text{Level of total coronavirus anxiety} = (\text{openness} \times -0.238) + (\text{conscientiousness} \times -0.249)$$

The calculated coefficient of determination indicates that 0.203 of the variance related to the level of total coronavirus anxiety is explained by predictor variables. The results of Table 3 represent the significance of openness and conscientiousness with the standard coefficients of -0.188 and -0.249 in predicting the level of the mental component of coronavirus anxiety, respectively. Further, their negative values indicate that higher openness or conscientiousness leads to less level of the mental component of coronavirus anxiety. Furthermore, conscientiousness plays a more important role in predicting the level of the mental component of coronavirus anxiety due to its higher coefficient compared to openness.

The level of the physical component of coronavirus anxiety can be predicted based on the big five personality traits. Openness to experience with the standard coefficient of -0.255 is only regarded as significant in predicting the level of the mental component of coronavirus anxiety (Table 3). In addition, lower openness leads to an increase in

the level of the physical component of coronavirus anxiety since the sign of its coefficient is negative. The determined coefficient of determination demonstrates explaining 0.133 of the variance related to the level of the physical component of coronavirus anxiety by the predictor variable of openness.

Accordingly, big five personality traits can predict coronavirus anxiety at the 95% confidence level.

Q2. Is there a significant difference between the level of the coronavirus anxiety in the medical staff contacting directly with COVID-19 patients and that of those exposing indirectly?

Considering that the probability value of Mann-Whitney U test is more than 0.05 (Table 4), no significant difference is observed between the level of coronavirus anxiety in total, physical, and mental states among the medical staff contacting with COVID-19 patients directly and that of those exposing indirectly at the 95% confidence level.

Q3. Is there a significant difference between the level of coronavirus anxiety among medical staff with different education levels?

The level of coronavirus anxiety in total, mental, and physical states among medical staff with various education level is significantly different at the 95% confidence level since the probability value of chi-square test is less than 0.05 (Table 5). Then, the result of a paired sample t-test indicated a significant difference between the level of coronavirus anxiety

Table 4. Results of Mann-Whitney U test for answering the second question

Type of anxiety	Exposure	Number	Mean	Mann-Whitney		
			rank	U statistic	Z statistic	P-value
Coronavirus	Yes	87	109.3	5019.5	-0.764	0.445
	No	123	102.8			
Mental component of coronavirus	Yes	87	110.7	4897.0	-1.048	0.295
	No	123	101.8			
Physical component of coronavirus	Yes	87	105.1	5319.5	-0.072	0.942
	No	123	105.7			

Table 5. Results of Kruskal-Wallis test for answering the third question

Type of anxiety	Education level	Number	Mean rank	Chi-square	Degree of freedom	P-value
Coronavirus	Diploma and associate	31	115.3	11.0	3	0.012
	Bachelor	79	119.3			
	Master	21	102.5			
	Doctorate and higher	79	88.68			
Mental component of coronavirus	Diploma and associate	31	112.1	9.9	3	0.020
	Bachelor	79	119.2			
	Master	21	104.5			
	Doctorate and higher	79	89.5			
Physical component of coronavirus	Diploma and associate	31	116.2	11.4	3	0.010
	Bachelor	79	119.5			
	Master	21	98.2			
	Doctorate and higher	79	89.2			

in total, mental, and physical states in two education levels of bachelor and doctorate and higher. Due to the significant difference between the mean rank of two levels, coronavirus anxiety in bachelor level is more than doctorate and higher, and higher education level results in decreasing the difference between the mean of the level of coronavirus anxiety. In fact, although the result is statistically insignificant, coronavirus anxiety decreases by increasing education level.

Q3. Is there a significant difference between the level of coronavirus anxiety among medical staff with various occupational categories?

Since the probability value of chi-square test is less than 0.05 (Table 6), a significant difference was observed between the level of coronavirus anxiety in total and mental states among medical staff with various occupational categories. Additionally, the results of paired sample t-test represented that the level of coronavirus anxiety in total and mental states is significantly different among specialists and sub-specialists, nurses, laboratory personnel and radiologists, and other medical staffs. Regarding both differences, the level of coronavirus anxiety related to specialists and sub-specialists is

less compared to that of nurses, paramedics, and laboratory personnel and radiologists, although the difference is no significant statistically.

Discussion

Since the personality traits of medical staffs and the level of their coronavirus anxiety affect the quality of caring patients, recognizing their effective factors can be considered as useful to improve the quality of the services provided in the healthcare field. Thus, identifying endangered medical staff and using therapeutic interventions such as training the skills of coping with stresses, especially in critical conditions and strengthening protective personality factors can be helpful for preventing or decreasing the anxiety caused by contagious and deadly diseases such as COVID-19. The impossibility of in-person sampling during conducting the study due to quarantine conditions in Iran and application of the CDAS, recently developed by Alipour et al. (2020), and lack of standardization among different groups, are considered as two limitations of the study. Thus, it is suggested to standardize the instrument in different social groups.

The present study was conducted with the aim of predicting corona disease anxiety based on five big personality traits among medical staff in

Table 6. Results of Kruskal-Wallis test for answering the fourth question

Type of anxiety	Occupation	Number	Mean rank	Chi-square	Degree of freedom	P-value
Coronavirus	Specialist	76	87.09	12.58	4	0.014
	Nurse	62	113.18			
	Paramedic	9	100.00			
	Laboratory personnel and radiologist	5	103.70			
	Other medical staffs and services	58	122.43			
Mental component of coronavirus	Specialist	76	86.93	12.11	4	0.017
	Nurse	62	113.71			
	Paramedic	9	104.33			
	Laboratory personnel and radiologist	5	107.20			
	Other medical staffs and services	58	121.09			
Physical component of coronavirus	Specialist	76	90.38	9.307	4	0.054
	Nurse	62	110.10			
	Paramedic	9	100.44			
	Laboratory personnel and radiologist	5	103.3			
	Other medical staffs and services	58	121.36			

Tehran. The results of multiple regression analysis showed that personality traits in the components of conscientiousness and agreeableness were able to predict the level of general corona disease anxiety. According to the standard coefficients, it was shown that the conscientiousness variable has a more important role in predicting the level of general corona disease anxiety in the medical staff, in that by increasing conscientiousness and agreeableness, corona disease anxiety decreases. In predicting the level of corona psychological anxiety, the conscientiousness variable plays a more important role. This research finding is in line with the findings of many studies such as Barghi Irani et al. (2014), Kato et al. (2010), Sanatinia et al. (2015), Chen (2019), Wat Sun and Clark (2020), and Norhawati et al. (2020). In explaining this finding, we can refer to the theory of Costa and McCray and the documents of Wat Sun and Clark (2020), Nourhawati et al. (2020), Wilader et al. (2019), Chen (2019), Milas et al. (2018), and Vihaya et al. (2012), who believe that people with conscientiousness have high self-efficacy and can adapt to unpredictable circumstances (such as sudden onset of cov19

and widespread anxiety). These people are able to decide quickly in such situations and act properly; they have personal discipline and undertake their job duties well, get more information every day, attempt harder than required, and as a result of more knowledge (about this virus), the level of corona disease anxiety decreases among them. Because these people are conscientious and responsible, they are more successful in their job (especially medical staff who are more vulnerable to the virus than others) and less likely to be anxious. Conscientious people consider the challenges of life to be controllable and an opportunity to learn, and instead of escaping and avoiding difficulties and problems, they cope with them purposefully. Another finding of this study is that corona anxiety can be predicted by agreeableness. This result is in line with the findings of some studies such as Barghi Irani (2014), Kohne Shahri and Jomhari (2016), Kato et al. (2010), Abdel- Khalek (2012), Vi Haia et al. (2012), Barford and Smiley (2016), Mi Las et al. (2018), Chen (2019), Norhawati et al. (2020), and Wat Sun and Clark, 2020. In explaining this finding, it can be said that in Costa and McCray's

theory, agreeable people are altruistic and believe that others have the same feeling with them. In fact, the positivity and criticism of agreeable people reduces anxiety in them. In terms of corona disease anxiety, having a sense of trust, morality, altruism, cooperation, humility, compassion, empathy and sympathy are the characteristics of this component in the medical staff that causes patients to feel compassion, empathy, and sympathy, and to show less avoidance of patients, and thus to experience less corona virus anxiety. The other result of the study shows that the neurotic personality factor was positively and significantly correlated with Corona disease anxiety (0.39). However, this factor was not able to predict corona virus anxiety. On the one hand, this finding is in line with the findings of some researches such as Agah Harris, Ramezani and Rafiei Maqamat, (2018), and on the other hand, is inconsistent with the findings of other research such as Barghi Irani et al. (2014), Abdel- Khalek (2012), Barford and Ismaili (2016), Wat Sun and Clark (2020), which indicate a high correlation between neuroticism and anxiety. As can be seen, the degree of correlation and predictive validity of this factor varies in different studies, but ultimately confirms the positive and significant relationship between neuroticism and anxiety. This discrepancy may be due to the individual and social characteristics of the medical staff in this study and may be due to differences in measurement tools, errors in statistical methods used, and self-report forms. Because in self-reporting forms, the findings are based on people's mental reports, they may not be factual. Of course, in explaining the difference in the degree of correlation obtained, it is probable to consider the possible assumption that this increase and decrease of correlation may be due to the structural measurement and conceptualization of this factor. Studies should be done on structural conceptualization and the scope of components of this factor (Aghayousefi & Mir Hosseini, 2011). Therefore, depending on the extent to which each of

the studies measured different levels of anxiety, the different results show the expectation that people with high neuroticism are more anxious, depressed, emotional, tense, and vulnerable (Ali Akbari et al., 2020; Abdel- Khalek, 2012, Koto et al., 2010).

However, it should be noted that this factor, along with different levels of other factors, leads to increased anxiety in individuals. Explaining the lack of predictive power of neuroticism, it can be said that medical staff, due to their jobs and the emergence of COV-19, have to study, research and obtain more information about ways to prevent the spread of the virus to their family members and others. That is why they feel less threatened and anxious than ordinary people in society, whilst they are forced to face threatening and dangerous situation in critical situations. This confrontation can lead to more efficient solutions to reduce their anxiety. Regarding the difference between the predictive rate of this factor in the present study with other studies, we can attribute it to the modifiers of this study. For example, modifiers such as the culture of respondents, the time of the research, the geographical location, and therefore the culture of that area may affect the importance of certain aspects of personality and anxiety. Despite the correlation between this variable and corona's psychological and physical anxiety, it does not predict corona's anxiety. A possible explanation for this finding is the type of anxiety being studied and also the pattern being observed. Thus, differences in findings do not contradict each other, rather, different modifiers lead to different results. In a variety of anxiety disorders, neuroticism is the most important predictor of anxiety.

Another explanation may be that corona disease anxiety may not be classified as an anxiety disorder by the American Psychiatric Association as diagnostic and statistical manual of mental disorders. It is possible that people in the current situation of the country (quarantine and pervasive prevalence of the corona virus) do not fall into the

category of people with anxiety disorders, and this anxiety is a normal anxiety or temporary period of fear and worry that is caused by stress and does not last more than 6 months. Given the widespread and intense media publicity of the consequences of this disease and the announcement of daily statistics on deaths from this disease, and the development of widespread fear and anxiety in people, the normal or abnormal diagnosis of this anxiety only by the use of the Corona disease anxiety questionnaire is difficult, and it is the responsibility of the clinician to take into account the individual cultural background factors; thus, the predictive power of neuroticism in the case of corona virus anxiety is justifiable. Another explanation is that people who are anxious about having corona can be people who have a higher life expectancy and attempt harder to live longer and survive more, and afraid of suffering, pain, illness, and death. That is to say, according to Freud's theory, their instinct for life is higher. While people with higher neuroticism have higher instincts for death and devastation and are more likely to die and have higher levels of aggression.

The research findings also showed that the personality factor of extraversion has a negative and significant correlation with Corona anxiety (39.0-); however, this personality factor is not able to predict Corona disease anxiety. This finding is consistent with the findings of some studies, such as Agah Harris et al. (2018), Mohammadzadeh, Jamhari, and Kohnehshahr (2016), and on the other hand, is inconsistent with the findings of other studies, such as Barghi Irani et al. (2014), Sanatinia, Middleton et al. (2015), and Nourhawati et al. (2020), showing that the level of anxiety is lower in extroverted people.

In explaining the unpredictability of the predictive factor of extroversion in the present study, we can refer to the existence of moderators in this regard. There are various modifiers that are effective in determining other factors that lead to corona disease anxiety in interaction with

extroversion, such as the nature of anxiety, the culture of the medical staff, people related to the medical staff, the geographical location of the study, and time of conducting research. The data of this study were collected during the recurrence period of Corona disease anxiety (April 2020) and the time of intense media propaganda and the development of double anxiety in individuals during the quarantine period, which coincided with Nowruz holiday, all of which affect the relationship and importance of certain aspects of personality and physical and mental anxiety. In explaining this factor, it should be noted that the components of extraversion, including altruism, sociability, assertiveness, activity level, excitement and happiness, can be reversely connected to general anxiety, social anxiety and depression (Shin and Newman, 2019). That is, the more extroversion there is, the less anxiety there is and the more the level of anxiety is predicted. But there are other factors involved in the anxiety caused by corona. Extroverts are more likely to be under stress due to this severe contagion illness and the inability to keep in close contact with others and to be in quarantine and forced into house arrest. While introverts who are reluctant to socialize and prefer to stay at home are less likely to experience stress during quarantine and experience less corona disease anxiety. In another explanation, we can refer to the mood theory of Arnold Buss and Robert Plomin. According to this theory, sociability refers to how important it is for people to interact with others. People with a high social mood prefer to have group activities and talk more with others. In contrast, people who are not sociable like to be alone in doing things and mostly avoid others (Wat Sun & Clark, 2020). Therefore, according to this theory, being in quarantine conditions and not being able to communicate with friends and relatives, especially during the Nowruz holidays, and not having group activities and hobbies can increase the level of psychological stress and anxiety in extroverts. Introverts also avoided being

in public before Corona outbreak and preferred to work alone. Thus, under conditions of limited travel and social distance, they suffered less anxiety and stress. This personality trait interacts with other personality traits to reduce anxiety. Of course, the impact of different levels of factors and components of each factor should also be considered in future research.

The results showed that there was a negative and significant correlation (0.25) between the openness to the experience and corona anxiety. However, this factor could not predict Corona disease anxiety. This finding is consistent with some research such as Norhauti et al. (2020), Wat Sun and Clark (2020), Abbasi Asl, Naderi and Akbari (2016), Agah Harris et al. (2018), Barghi Irani et al. (2014); and inconsistent with some studies such as Mill et al. (2018) and Kato et al. (2010). In explaining the inability of openness to experience in predicting corona anxiety, it can be said according to some research, openness to experience is not a valid predictive for a variety of anxiety disorders. In explaining this finding, we can point to the two-dimensionality of external factor (focused on the external environment) and internal factor (focused on inner feelings and thoughts) (Aghayosefi & Mr. Salehi Mir Hosseini, 2011). Therefore, low correlation or lack of predictive power of openness to experience for Corona disease anxiety can be related to the overall assessment of this variable.

In general, in explaining the negative relationship between openness to experience and anxiety, we can say that people with high openness to experience have characteristics such as tendency to new experiences and thoughts, and desire for adventure and excitement, which are the factors that reduce anxiety. In addition, interest in new experiences can also be linked to the motivation to learn about unknown phenomena and issues, such as COV_19, which is one way to reduce corona anxiety.

Another finding of the study on the second question was that there was no significant difference

between the level of Corona disease anxiety in medical staff who are in direct contact with COV_19 patients and those who are not in direct exposure. Given that there has been no similar study so far, we cannot refer to other research reports. In the possible explanation of this finding, it can be said that in hospitals, special clothes and special equipment are provided to doctors, nurses, etc., who are in direct contact with COV_19 patients, and the possibility of this virus penetrating their bodies is very low. While due to the shortage of these facilities and equipment, they are not provided to other medical staff, and thus, these people are almost as anxious as those who are directly confronted. Moreover, accurate and complete screening is not done upon admission of patients to hospitals, and a number of patients receive Corona diagnosis a few days after hospitalization in the normal wards, and medical staff interact with them directly without special clothing.

Another finding of the study in relation to the third question was that there is a significant difference between the level of corona disease anxiety in medical staff with different levels of education. In that, people who had diploma, postgraduate, and bachelor's degree had higher anxiety than those with a master's degree and a doctorate. Because no similar research has been done in this regard, we cannot refer to other research for discussion. In the possible explanation of this finding, probably, this difference may be due to the awareness of people with higher levels of education about this virus and ways to prevent it, and more likely it goes back to the fourth question of the research. People with lower levels of education were nurses and paramedics who spent more hours interacting with COV_19 patients. However, it is better to examine the factor of education levels in other studies.

Findings related to the fourth question showed that the overall corona anxiety and psychological anxiety of this virus is lower in specialized and subspecialty physicians than nurses, paramedics,

laboratory specialists and radiologists. Because of the novelty of this research, there are no other reports that can be cited for discussion. However, in the possible explanation, as mentioned in the finding related to the third question, it can be said that specialist and subspecialty physicians are in contact with these patients for less hours, and many surgeons and physicians specializing in hospitals would not operate and accept the patients if their corona test was positive during the days of Corona widespread. Many professionals have also closed their offices or minimized their working hours. Perhaps this has reduced corona disease anxiety in them, and perhaps, as noted earlier, is due to their higher levels of education. In short, direct exposure to corneal patients, levels of education, and occupational interactions can lead to greater anxiety in the medical staff. However, the impact of different levels of these factors and their traces on each other and the anxiety of Corona should be investigated in further studies.

Acknowledgment

The researcher is very grateful to Dr Ahmad Alipour for his guidance in the different steps of the study, as well as all specialists, nurses, paramedics, laboratory personnel, and other medical staff for their participation in the study.

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